



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,399	09/11/2003	Hiromitsu Takahashi	IPE-023	3761
20374	7590	02/12/2004	EXAMINER	
KUBOVCIK & KUBOVCIK SUITE 710 900 17TH STREET NW WASHINGTON, DC 20006			PRITCHETT, JOSHUA L	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/659,399

Applicant(s)

TAKAHASHI ET AL.

Examiner

Joshua L. Pritchett

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9-11-03.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 5, 11, 13, 15, 17, 19 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Suga (US 6,297,908).

Regarding claim 1, Suga discloses an optical functional sheet comprising light diffusing phases (16) and transparent phases (14) extending in a direction perpendicular to the surface of the sheet, wherein the light diffusing phase and the transparent phase are alternately arranged along the sheet surface direction (Fig. 1).

Regarding claim 3, Suga discloses the shape of the projected image of a transparent phase onto the sheet is tetragon (Fig. 1).

Regarding claim 5, Suga discloses wherein a light-diffusing phase is a transparent matrix component, in which fine particulate matter having a different refractive index from that of the matrix component is dispersed (Fig. 1; col. 4 lines 35-37).

Art Unit: 2872

Regarding claim 11, Suga discloses wherein the shapes of the cross section of the light diffusing phases and the transparent phases in a direction normal to the sheet surface are rectangle (Fig. 1).

Regarding claim 13, Suga discloses wherein the ratio of the film length of the light-diffusing phase to the film thickness of the light-diffusing phase is not less than 1 (Fig. 12).

Regarding claim 15, Suga discloses wherein the area ratio of the light diffusing phases to the area of the transparent phases within the surface of the sheet is 1/50 to 1/1 (Fig. 1).

Regarding claim 17, Suga discloses wherein the film thickness is 10-500 microns (Fig. 12).

Regarding claim 19, Suga discloses another optical functional sheet (12).

Regarding claim 23, Suga discloses a light guiding plate (12; Fig. 8).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, 6-8, 12, 14, 16, 18, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga in view of Nakai (US 6,219,119).

Regarding claim 2, Suga teaches the invention as claimed but lacks reference to the light-diffusing phase forming a continuous phase. Nakai teaches the use of the light diffusing phase (1) arranged in a form of a continuous phase in which the light diffusing phases are mutually coupled in a direction along the sheet surface, and the transparent phase (2) are arranged in forma of discontinuous phases in which the transparent phases are decoupled by the light diffusing phases (Fig. 8). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Suga light diffusing phase form a continuous phase as taught by Nakai for the purpose of having all the light diffused to widen the viewing angle of the functional sheet.

Regarding claim 4, Suga discloses the shape of the projected image of a transparent phase onto the sheet is tetragon (Fig. 1).

Regarding claim 6, Suga discloses wherein a light-diffusing phase is a transparent matrix component, in which fine particulate matter having a different refractive index from that of the matrix component is dispersed (Fig. 1; col. 4 lines 35-37).

Regarding claims 7 and 8, Suga discloses the invention as claimed and further teaches the use of air as a transmissive material for use in light diffusing functional sheets (col. 8 lines 11-12). Air is known to have a refractive index of 1, which is different than any transparent optical matrix. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use air to replace the dispersed phase in the light diffusing phases of Suga for the purpose of minimizing production costs by eliminating the need to purchase additional materials.

Art Unit: 2872

Regarding claim 12, Suga discloses wherein the shapes of the cross section of the light diffusing phases and the transparent phases in a direction normal to the sheet surface are rectangle (Fig. 1).

Regarding claim 14, Suga discloses wherein the ratio of the film length of the light-diffusing phase to the film thickness of the light-diffusing phase is not less than 1 (Fig. 12).

Regarding claim 16, Suga discloses wherein the area ratio of the light diffusing phases to the area of the transparent phases within the surface of the sheet is 1/50 to 1/1 (Fig. 1).

Regarding claim 18, Suga discloses wherein the film thickness is 10-500 microns (Fig. 12).

Regarding claim 20, Suga discloses another optical functional sheet (12).

Regarding claim 24, Suga discloses a light guiding plate (12; Fig. 8).

Claims 9 and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Suga in view of Kashima (US2001/0030638).

Regarding claim 9, Suga teaches the invention as claimed but lacks reference to the claimed length to thickness ratio of the transparent phases. Kashima teaches the length of the transparent phase to the thickness of the transparent phase being between 2 and 10 (Fig. 7). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Suga invention include the length to thickness ratio of Kashima for the purpose of maximizing the total surface area to area of light diffusing phase on the surface of the functional ratio to widen the viewing angle of the functional sheet.

Regarding claim 21, Suga teaches the invention as claimed but lacks reference to the use of a light diffusive sheet as the other functional sheet. Kashima teaches the use of multiple functional sheets with one being a functional sheet with transparent and light diffusing phases (Fig. 1) and also the use of a light diffusive sheet over the top of another functional sheet (Fig. 6). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Suga invention include the other light diffusing functional sheet as taught by Kashima for the purpose of having total diffusion of the light exiting the functional sheet to increase the viewing angle.

Claims 10 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga in view of Nakai as applied to claim 2 above, and further in view of Kashima.

Regarding claim 9, Suga in combination with Nakai teaches the invention as claimed but lacks reference to the claimed length to thickness ratio of the transparent phases. Kashima teaches the length of the transparent phase to the thickness of the transparent phase being between 2 and 10 (Fig. 7). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Suga invention include the length to thickness ratio of Kashima for the purpose of maximizing the total surface area to area of light diffusing phase on the surface of the functional ratio to widen the viewing angle of the functional sheet.

Regarding claim 21, Suga in combination with Nakai teaches the invention as claimed but lacks reference to the use of a light diffusive sheet as the other functional sheet. Kashima teaches the use of multiple functional sheets with one being a functional sheet with transparent and light diffusing phases (Fig. 1) and also the use of a light diffusive sheet over the top of

Art Unit: 2872

another functional sheet (Fig. 6). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the Suga invention include the other light diffusing functional sheet as taught by Kashima for the purpose of having total diffusion of the light exiting the functional sheet to increase the viewing angle.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 571-272-2318. The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JLP 


DREW A. DUNN
SUPERVISORY PATENT EXAMINER